

**THE FACTORS THAT CONTRIBUTE TO THE CONTINUOUS USAGE  
OF BROADBAND TECHNOLOGIES AMONG YOUTH IN RURAL  
AREAS: A CASE OF NORTHERN REGION OF MALAYSIA**

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## Abstrak

Walaupun banyak faedah yang di perolehi daripada teknologi jalur lebar dalam perkhidmatan pendidikan dan kesihatan, penggunaannya di kawasan pedalaman masih rendah termasuk di Malaysia. Hal ini menimbulkan persoalan mengenai penggunaan jangka masa panjang teknologi ini. Pada masa kini, kurang kajian empirikal berkenaan penggunaan jalur lebar yang berterusan dalam kalangan belia terutamanya melibatkan pelajar sekolah di kawasan pedalaman Malaysia. Objektif utama kajian ini adalah untuk mengenal pasti faktor yang menyumbang kepada penggunaan secara berterusan teknologi jalur lebar dalam kalangan belia di kawasan pedalaman Malaysia. Oleh itu, satu model kajian yang mengandungi lapan faktor yang menyumbang kepada penggunaan teknologi jalur lebar secara berterusan telah dicadangkan. Kajian ini menggunakan pendekatan kuantitatif. Sebanyak 450 set borang soal selidik telah diedarkan kepada responden di wilayah utara Malaysia. Namun, hanya 393 set borang soal selidik telah dikembalikan dan ini mewakili 87.33% kadar maklum balas. Data yang dikutip kemudiannya dianalisa menggunakan Model Persamaan Berstruktur bagi mengkaji hubungan antara faktor yang menyumbang. Hasil kajian menunjukkan jangkaan prestasi, jangkaan usaha, pengaruh sosial, kesesuaian, keadaan kemudahan, kualiti perkhidmatan, kemahuan sikap pengguna dan kepuasan pengguna adalah faktor signifikan yang menyumbang serta memastikan penggunaan jalur lebar yang berterusan dalam kalangan belia di kawasan pedalaman. Maka kajian ini menyumbang kepada bidang pengetahuan dalam Informatik Komuniti dengan memberikan satu rangka kerja untuk mencapai penggunaan jangka masa panjang teknologi jalur lebar dalam kalangan belia di kawasan luar bandar, melalui integrasi dua model sistem maklumat iaitu *Information System Continuance Post Acceptance* dan *Unified Theory of Acceptance and Use of Technology*. Faktor yang dikenal pasti dapat menyumbang sebagai input kepada penyediaan polisi kerajaan dan pembekal perkhidmatan supaya terdapatnya permintaan yang berterusan terhadap perkhidmatan jalur lebar dari bukti yang diperolehi dari kajian ini. Penggunaan berterusan jalur lebar di kawasan pedalaman akan memberikan sumbangan positif kepada pencapaian akademik, literasi dalam kalangan belia, merapatkan jurang digital dalam penggunaan jalur lebar, menyumbang kepada peningkatan perniagaan dari rumah dan produktiviti negara.

**Kata kunci:** Informatik Komuniti, Penggunaan jalur lebar berterusan, *Information System Continuance Post Acceptance*, *Unified Theory of Acceptance and Use of Technology*, Jurang digital.

## Abstract

Despite the benefits of broadband technology in education and healthcare services, its usage in the rural areas is still low and Malaysia is not excluded. This situation leads to raising the question of long-term usage of the technology. Presently, there are less empirical study on the continuous usage of broadband technology among the youths particularly school children in the rural areas of Malaysia. The objective of this study is to determine the contributing factors for continuous usage of broadband technology among youths in the rural areas. Therefore, a research model was proposed consisting of eight contributing factors for continuous usage of broadband technology. Moreover, the study used quantitative approach by distributing 450 questionnaires to respondents in the northern region of Malaysia. However, only 393 questionnaires were returned which represent 87.33% response rate. The data collected were analyzed using a Structural Equation Model to investigate the relationship between contributing factors. The results showed that performance expectancy, effort expectancy, social influence, compatibility, facilitating condition, service quality, user behavioural intention and user satisfaction are the significant contributing factors that must be in place to ensure the continuous usage of broadband among youth in the rural areas. Hence, this study contributes to the body of knowledge in Community Informatics by providing a framework for achieving long-term use of broadband technology among youths in the rural areas, through the integration of Information System Continuance Post Acceptance and Unified Theory of Acceptance and Use of Technology models. The factors identified may contribute as input to the government policy formulations and service providers to ensure continuous demand for broadband from the evidence extracted from this study. Continuous usage of broadband technology in the rural areas would have positive contributions on the academic performance, literacy among youths, bridging the digital divide in broadband usage, increase home business and national productivity.

**Keywords:** Community Informatics, Continuous Broadband usage, Information System Continuance Post Acceptance, Unified Theory of Acceptance and Use of Technology, Digital divide.

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## List of Abbreviations

PE	Performance Expectancy
EE	Effort Expectancy
SI	Social Influence
CP	Compatibility
FC	Facilitating Condition
SQ	Service Quality
UBI	User Behavioural Intention
US	User Satisfaction
BCUI	Broadband Continuous Usage Intention
VIF	Variance Inflation Factor
AVE	Average Variance Extracted
$f^2$	Effect size
$R^2_{\text{included}}$	$R^2$ when all the exogenous variables are existed
$R^2_{\text{excluded}}$	$R^2$ when a particular exogenous variable is omitted from the model
$Q^2$	Predictive Relevance
$Q^2_{\text{included}}$	$Q^2$ when all the exogenous variables are existed
$Q^2_{\text{excluded}}$	$Q^2$ when a particular exogenous variable is omitted from the model
$R^2$	Coefficient of Determination
CI	Community Informatics
SEM	Structural Equation Modeling
PLS-SEM	Partial Least Square- Structural Equation Modeling
CB-SEM	Covariance Based Structural Equation Modeling
GDP	Gross Domestic Product
TAM	Technology Acceptable Mode
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behaviour
MPCU	Model of PC Utilization
MD	Motivational Model
C-TAM-TPB	Combined TAM and TPB
DOI	Diffusion of Innovation
SCT	Social Cognitive Theory
UTAUT	Unified Theory of Acceptance and Use of Technology
ECT	Expectation-Confirmation Theory
ECM	Expectation-Confirmation Model
EDT	Expectancy Disconfirmation Theory
ICT	Information and Communication Technology
IT	Information Technology
MDGs	Millennium Development Goals
UN-MDGs	United Nation-Millennium Development Goals
UN-ICT	United Nation-Information and Communication Technology
UN-ICT	United Nation Information and Communication Technology
GeSCI	Global e-School and Communities Initiative
WSIS	World Summit on Information Society
ITU	International Telecommunication Union
UNESCO	United Nations Educational Scientific and Cultural Organization
WTISD	World Telecommunication and Information Society Day
ISDN	Integrated Services Digital Network

DSL	Digital Subscriber Line
MMDS	Multichannel Multipoint Distribution Service
LMDS	Local Multipoint Distribution Service
FSO	Free Space Optics
WiFi	Wireless Fidelity
WiMAX	Microwave Access
3G	Third Generation Mobile Network
IS	Information System
SMEs	Small and Medium Enterprises
U.S.A	United State of America
NITC	National Information Technology Council
MOSTI	Ministry of Science, Technology and Innovation
ND	Narrowband Dial-Up
ISDN	Integrated Services Digital Network
VOIP	Voice over Internet Protocol
DSL	Digital Subscriber Line
OECD	Organisation of Economic Cooperation Development
ADSL	Asymmetrical Digital Subscriber Line
ISP	Internet Service Provider
IPTV	Internet Protocol Television
HSPA	High Speed Packet
4G	Fourth-Generations
LTE	Long Term Evolution
2G	Second Generation Broadband Technology
VDSL	Very High Bit-Rate DSL
DOCSIS	Data over Cable Services Interface Specification
FTTH	Fiber-To-The-Home
R&D	Research and Development
GPTs	General Purpose Technologies
USP	Universal Service Provision
CMA	Communications and Multimedia Act
CBL	Community Broadband Library
CBC	Community Broadband Centre
P1	Packet One
WCDMA	Wideband Code Division Multiple Access
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
SPSS	Statistical Package for Social Science
KPKK	Ministry of Information, Communication and Culture

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0 Introduction**

This chapter provides brief idea of what this thesis is all about. It covers the background of the study that focuses on the information and communication technology, broadband and its technologies and brief description of northern region of Malaysia which is the location of this study. Besides, the problem statement as the justification for this study is stated while the research questions that go in line with research objectives are provided as well. Moreover, the significant of the research to both academics and practitioners are provided in this study while the scope of the research which delimits the study is explained in detail. Finally, the research plan and the chapterization of the thesis are provided.

### **1.1 Background of the Study**

#### **1.1.1 Global Effect of Information and Communication Technology**

The last segment of 20<sup>th</sup> century experiences evolvement of information age, which is a period that information is viewed to influence social, cultural and economic behaviour as machinery did in an earlier century during industrial age (Polykalas, Prezerakos, & Nikolinakos, 2012; Harvard Law School, 2007). The acquisition of knowledge and skills through efficient access and use of Information and

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